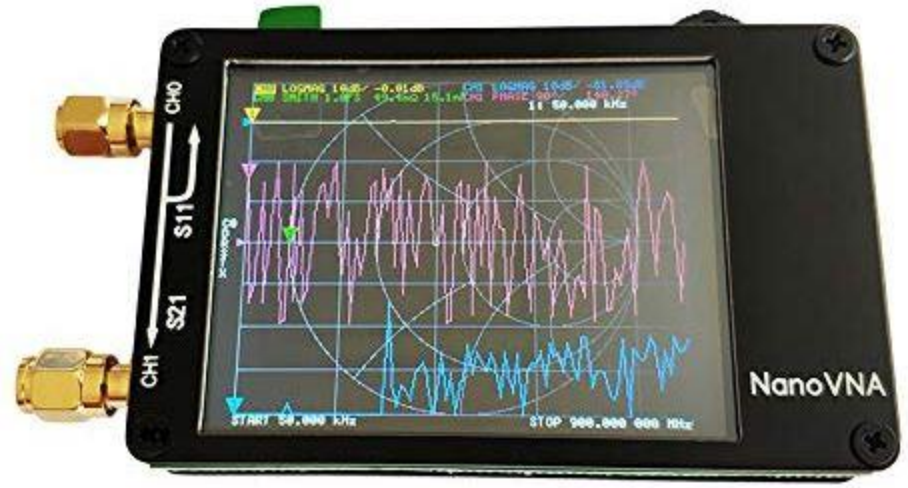
The Radio Hotel – Before the Nano VNA….

By Rick Hiller W5RH

Just think. We now have a very small handheld device that we can plug into our antenna systems and it will tell us SWR, Z and a few other S Parameters all for the cost of about $50. Holy Toledo, do you realize how many pieces of electro-mechanical test equipment you would have needed 20 or 30 years ago to do the same thing? Yep, lots of devices and lots of $. We are very lucky indeed.

The **Nano VNA** has many pluses (and a few caveats), but in the long run, all worth the $50 and the time it takes to understand how it works and just what it is telling us. If I can have your attention for a few minutes, I will take you on a short trip back to the thrilling days of yester-year, when men were men and hams were hams with little in the way of antenna instrumentation. It started simple, but it always got better.



Field Strength meter – very simple – a short antenna feeding a diode and meter circuit to show relative signal strength.

RF Ammeter -- back in the 30's, 40's and 50's Hams were using open wire line (OWL) and had little concern for the SWR on the line because we were using tube radios with adjustable networks on the exciter outputs. At best they would measure the RF Amperes occurring on the line to maximize output.

<u>Antenna Bridge</u> – required RF input from an exciter connected thru the bridge to the antenna. Balancing the bridge gave you the antenna system composite Z at the measurement point.

<u>GDO – Grid Dip Oscillator</u>. At a resonant frequency it provides a "dip" on its' analog meter. Of course, this dip would also occur at the resonant frequencies of all of the harmonics of that particular dipole, if tuned to those frequencies.

<u>SWR bridge</u> – many versions. From full manual to fully automatic, digital and cross needle versions. Warren Breune, of Collins Radio, invented the most popular configuration of sampling circuit that was used to drive manual and automatic meters.

Noise Bridge – used a wide band diode “noise” as a source. A dip in audio receiver hiss was the goal. Antenna impedance was read off the calibrated, tuning pointer scale.

MFJ Antenna analyzer(s) – a wide range of meters from a simple bridge to the popular MFJ 259/269 series. Showing SWR and R +-j impedance in numerical value across a tunable range of frequencies.

Rig Expert(s) and the SARK – Hand held -- Easy to understand graphical display of the SWR sweep as defined in the menu interface. Can be linked to a PC for plot generation.

Telepost LP-100A Watt Meter is essentially a 50mW to 5 KW OIB (Operating Impedance Bridge) – At all power levels it shows power out, SWR and Return Loss. Also can show Impedance R +-j at power thus avoiding high RF environment interference. Links to a PC for plot generation.

Enjoy your hobby. 73, Rick -- W5RH